

RADIO RECEIVER SET

Background Information

The present invention relates to a radio receiver set.

The growing complexity of radio receiver sets, for example due to supplementary services, such as RDS or TMC, ^(Radio Data System) has made it increasingly more difficult to learn how to operate such sets. Printed operating instructions available in known methods heretofore are quite voluminous, and can often be understood by lay people only after considerable expenditure of time and energy, and much practice. Moreover, manufacturers of such sets are faced with the difficulty of keeping the printed operating instructions updated to the current state of development of the particular set in question.

Summary Of The Invention

The object of the present invention is, therefore, to provide operating instructions, which will always be available when questions pertaining to operation arise, and which are adapted to the development stage of the particular unit.

This objective is achieved by the present invention in that stored operating instructions can always be retrieved and read out via an output device.

The operating instructions can be read out within the scope of the present invention, both as text and/or with the aid of a voice output.

Moreover, the radio receiver set in accordance with the present invention has the advantage that the operating instructions cannot be misplaced. In the event that the owner of the radio receiver set changes, the instructions can easily be passed over to the new owner.

A first specific embodiment of the present invention provides for the operating instructions to be retrievable from a non-volatile memory in the radio receiver. The fact that digital memories are becoming increasingly more economical and compact makes this specific embodiment inexpensively possible.

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5 A second specific embodiment of the present invention provides for ^{an arrangement}~~means~~ for retrieving the operating instructions from a central device, which is able to be connected via a transmission device to the radio receiver, and for receiving the operating instructions received from the central device.

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10 This specific embodiment does, in fact, require access to a transmission device, for example to a mobile radio network, or, in the case of steady-state radio receivers, also to a customary communications network, including the Internet. It has the advantage, however, that operating instructions which are valid for all receivers in question, can be modified in the central device, without the user of the device having to expend any outlay for that purpose. Thus, it is possible, for example, to correct an error originally present in the central device. Moreover, a change in the services able to be received by the radio receiver can necessitate a change in the operating instructions. This can likewise be easily done in the central device.

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20 One advantageous embodiment of the present invention provides that one portion of the operating instructions is able to be retrieved at any one time. This simplifies or eliminates the need for leafing through the possibly very voluminous operating instructions. This refinement can preferably provide for a portion of the operating instructions to be retrievable in response to application of the operating voltage. This section of the operating instructions can include, for example, introductory information, informing the user of the most important functions of the device for initial operation and, optionally, referring the user to additional information in the operating instructions. Moreover, this section of the operating instructions, in the same way as other sections, can be retrievable through an input selection.

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30 One further refinement of the radio receiver in accordance with the present invention provides for a section of the operating instructions, which is adapted to the particular operating state of the receiver, to be retrieved and output by using a preassigned operational control element. This renders possible a context-dependent selection from the operating instructions, so that the user receives the relevant section of the operating instructions.

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35 Provision is preferably made in this further refinement for other sections of the operating instructions to be output through repeated actuation of the preassigned operational control

element.

It can also be provided in the case of the radio receiver according to the present invention for a section of the operating instructions to be output by actuating the preassigned operational control element and by subsequently actuating a further operational control element, the
5 section of the operating instructions relating to the further operational control element. In this manner, selecting from the operating instructions is also facilitated when the user would like to receive information independently of the prevailing operating state of the radio receiver. Thus, for example, in response to actuation of the preassigned operational control element,
10 for example, optionally identified "HELP", a key having the "AUDIO" function can be actuated. The user then receives information pertaining to possible audio settings, such as, "use the AUDIO function to adjust the sound geometry. You can shift the audio reception to the front, back, to the left or right. You can adjust the balance with the left/right rocker switch, and the mixer control with the up/down rocker switch".

Exemplary embodiments of the present invention are depicted in the drawing on the basis of several figures and elucidated in the following description. The figures show:

- Figure 1 an exemplary embodiment including operating instructions stored in the radio receiver; and
Figure 2 an exemplary embodiment, designed for retrieving the operating instructions from a central device.

Equivalent parts in the figures are provided with the same reference numerals.

Both exemplary embodiments illustrate an antenna 1, a receive section 2, a VF^(Voice Frequency) amplifier 3, and a loudspeaker 4. For the sake of clarity, details have been left out, such as of a plurality of loudspeakers for stereo reproduction, stereo decoders, RDS decoders, etc.. All receiver
30 functions, such as transmitter selection and volume adjustment, are controlled by a controller 5 having a keypad 6 connected thereto. In addition, a display 7, provided for displaying current adjustments and other information, is also linked to controller 5. Moreover, in the exemplary embodiments, a voice output unit 8, whose output signals are made audible via VF

amplifier 3 and loudspeaker 4, is connected to controller 5. In the exemplary embodiment depicted in Figure 1, the operating instructions are stored in a non-volatile memory 9. Besides the operating instructions, this can also contain data required for operating the radio receiver.

- 5 A special key 10 for retrieving the operating instructions from memory 9 is provided on keypad 6 and is identified accordingly - for example with the word HELP.

In the exemplary embodiment according to Figure 2, the operating instructions are stored in a central device 11 (CE), which can be connected via a suitable transmitting medium to the receiver according to the present invention. For this, a transmitting/receiving device 12 (T/R) is provided with an antenna 13 in the exemplary embodiment illustrated in Figure 2. In response to actuation of the HELP key and, optionally, a plurality of keys of keypad 6, transmitting/receiving device 12 sends an appropriate query to central device 11. This query contains data pertaining to the inquiring receiver, suitable specifications (addresses) for transmitting the operating instructions to the receiver and, optionally, specifications with respect to which sections of the operating instructions are desired. The central device is made up essentially, for example, of a computer which contains and manages all necessary operating instructions. As a response, the operating instructions, or sections thereof, are transmitted in the exemplary embodiment according to Figure 2 via the same transmitting medium, for example a mobile radio network or the Internet, to the receiver, where they are fed via antenna 13 and transmitting/receiving device 12 to controller 5. A memory 14 is provided for temporarily storing the received operating instructions or sections thereof.